

CHEN et al. — 09/822,831
Attorney's Docket: 011765-0280083

REMARKS

Claims 1-24 and 26 are pending. Reconsideration in view of the following remarks is respectfully requested.

Claim 17 was rejected under 35 U.S.C. §102(b) over Fan et al. (Synthetic Metals, 1999). The rejection is respectfully traversed.

Claim 17 recites an electronically conducting polymer/carbon nanotube composite produced by preparing a dispersion of carbon nanotubes in a solution of one or more polymerisable monomers which upon polymerization form an electronically conducting polymer and polymerising the monomer solution to form a unitary polymer mass containing discrete nanotubes individually coated in the electronically conducting polymer dispersed therein.

It is respectfully noted that Fan et al. are discussed on page 3, lines 13-24 of the instant application. As discussed in the instant application and as disclosed by Fan et al., the method employed by Fan et al. produces a powder and is not suitable for the production of electronically conductive polymer/nanotube composites as a unitary or unified polymer mass without stringent restrictions on the size of the mass of material produced. In addition, Fan et al. describe the product as CNT-PPY nanotubes, rather than a composite. The structure shown in Figure 1 of Fan et al. is single coated nanotube, and not a unitary polymer mass, as recited in claim 17.

Furthermore, as described in the "Experimental" section of Fan et al., the monocular structure of the resulting tubes was characterized by elemental analysis, FTIR, Raman spectra, and X-ray diffraction. FTIR (Fourier Transform Infrared Spectroscopy) Raman spectra and X-ray diffraction are techniques which are carried out on powders, thus confirming the conclusion that Fan et al. do not disclose a unitary polymer mass. Fan et al. also disclose that room-temperature conductivity for pressed pellers was measured by a four-probe method. It is clear from this disclosure that the product of Fan et al. is a powder as it would not be necessary to prepare pressed pellers if the product was a unitary polymer mass.

Reconsideration and withdrawal of the rejection of claim 17 over Fan et al. is respectfully requested.

Claim 17 was rejected under 35 U.S.C. §102(a) or (b) by Chen et al. (Advanced Materials, 2000). The rejection is respectfully traversed.

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The article by Chen et al. was not published more than one year prior to the April 2, 2001 filing date of the instant application. Accordingly, the Chen et al. article does not qualify as prior art under 35 U.S.C. §102(b).

The article by Chen et al. also lists as authors four of the five inventors of the instant application. The inventors include George Chen, Milo Shaffer, Derek Fray and Alan Windle. The remaining authors of the article, Gemma Dixon, Dan Coleby and Wuzong Zhou, did not contribute to the conception of the invention claimed in the instant application. A Declaration of the inventors under 37 C.F.R. §1.132 will be submitted to establish that the disclosure of the article was derived from the inventors of the instant application. Accordingly, the Chen et al. article is not "by another" and is not prior art under 35 U.S.C. §102(a).

The Examiner is respectfully to contact the undersigned in the event that the Rule 132 Declaration has not been submitted prior to the issuance of an Office Action responsive to the this amendment.

Reconsideration and withdrawal of the rejection of claim 17 are respectfully requested.

Claims 18-24 and 26 were rejected under 35 U.S.C. §103(a) over Niu (U.S. Patent 6,205,016) in view of Chen et al. or Fan et al. The rejection is respectfully traversed.

As discussed above, Chen et al. do not qualify as prior art. Accordingly, no further response with respect to the Chen et al. article is necessary.

MPEP §2143 states: "To establish a *prima facie* case of obviousness, three basis criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations."

Claim 18 recites an electrical energy storage device comprising a first electrode consisting of a first composite of carbon nanotubes and a first electronically conducting polymer and a first conducting member in contact with the first composite. The storage device also includes a second electrode and an electrolyte comprising mobile cations and anions. The electrolyte separates the first and second electrodes and is in contact with the first composite. The first composite consists of a unitary polymer mass containing discrete carbon nanotubes individually coated in the electronically conducting polymer dispersed

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therein and is formed by preparing a dispersion of carbon nanotubes in a solution of one or more polymerisable monomers which upon polymerization form an electronically conducting polymer and polymerising the monomer solution to form the unitary polymer mass.

The Office Action on page 4, paragraph number 6, acknowledges that Niu does not disclose or suggest the process of making composites as recited in claim 18, nor the structure implied by the process steps. The Office Action on page 5, lines 9-15, alleges that because Fan et al. disclose that conducting polymer microtubes have attracted attention because of their applications in electronic and electrooptical devices, that one of ordinary skill in the art would have been motivated by Fan et al. to make the composite of Niu by an *in situ* polymerization process, and would have a reasonable expectation of success in doing so.

It is respectfully submitted that the combination of Niu and Fan et al. fails to disclose all the limitations of claim 18.

It is further respectfully submitted that one of ordinary skill in the art would not have been motivated to combine the teachings of Niu and Fan et al. It is even further respectfully submitted that there is no reasonable expectation of success for combining Niu and Fan et al.

As discussed above, Fan et al. do not disclose a unitary polymer mass, as recited in claim 18. Fan et al. disclose CNT-PPY nanotubes. As also discussed above, Fan et al. disclose that the resulting product of their *in situ* polymerization is a powder, not a unitary polymer mass. The use of a unitary polymer mass allows formation of thin films without further formulation. Thin films are suitable use as the electrodes of an electrical energy storage device, as recited in claim 18. Powders, however, such as those disclosed by Fan et al., cannot be formed into thin films without further formulation. In addition, as discussed in the previous responses, including the Rule 132 Declaration of Mark Hughes, it is not possible to produce the claimed composite by the method taught by Niu.

As the composite of claim 18 cannot be produced by the method disclosed by Niu, as acknowledged by the Examiner and as shown by Applicants, and as the product disclosed by Fan et al. is a powder, and not a unified polymer mass, that is not suitable for the production of electronically conductive polymer/nanotube composites as a unified polymer mass, it is respectfully submitted that the combination of Niu and Fan et al. fails to disclose all the limitations of claim 18. It is also respectfully submitted that there is no motivation or suggestion to one of ordinary skill in the art to combine Niu and Fan et al. and there is no reasonable expectation of success for the combination.

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Claims 19-24 recite additional features of the invention and are allowable for the discussed above with respect to claim 18.

Claim 26 recites an electrical energy storage device comprising, *inter alia*, a first electrode comprising a first composite and a second electrode comprising a second composite. Each of the first and second composites consists of a unitary polymer mass containing discrete carbon nanotubes individually coated in the electronically conducting polymer dispersed therein and formed by preparing dispersion of carbon nanotubes in a solution of one or more polymerrisable monomers which upon polymerization form an electronically conducting polymer and polymerising the monomer solution to form a unitary polymer mass.

It is respectfully submitted that the combination of Niu and Fan et al. fails to include all the limitations of claim 26. It is also respectfully submitted that there is no motivation or suggestion to combine Niu and Fan et al. and there is no reasonable expectation of success for the combination.

Reconsideration of withdrawal of the rejection of claims 18-24 and 26 over Niu in view Fan et al. are respectfully requested.

In view of the above remarks, Applicants respectfully submit that all the claims are allowable and that the entire application is condition for allowance.

Should the Examiner believe that anything further is desirable to place the application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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